

(Collecting Spat and Producing Bedding Oysters on Shell Strings)*

by

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SCI. MED. DIV.

Maritimes oyster farmers need vast quantities of disease-resistant bedding oysters to stock their leases.

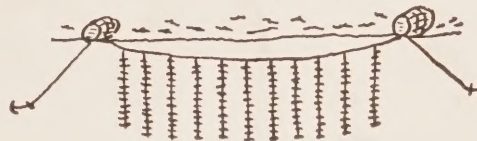
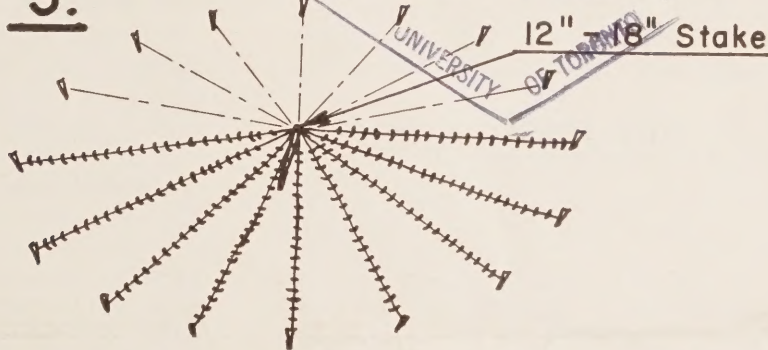
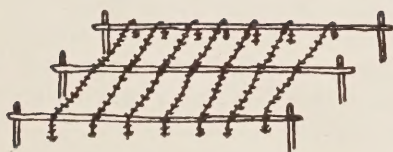
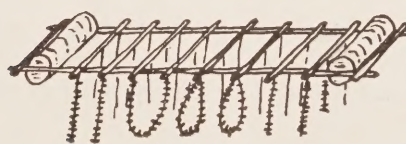
This circular tells how to collect spat on shell strings by a new method. And it tells how to rear the spat to bedding-size oysters. Older and useful Japanese methods are also described.

Ways of collecting spat

There are many ways of collecting spat. Some

are described in Chapter 6 of "Oyster Farming in the Maritimes" (see footnote). But, for those who lack experience, spat collection on shell strings seems the simplest and best.

The Japanese use shell strings in many ways (Fig. 1-5). The Department of Fisheries and the Fisheries Research Board of Canada working together

1.**Hung from Racks****2.****Hung from Floating Long-lines****3.****Umbrella Method****4.****Laid on Racks****5.****Hanging from Floats**

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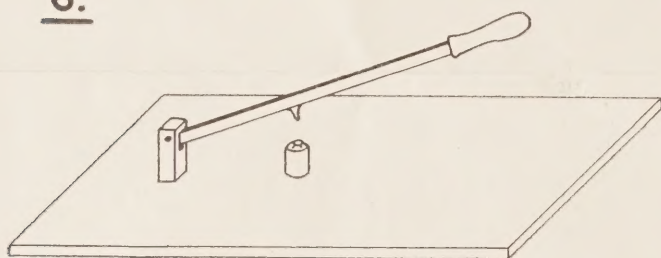
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have had some success in using shell strings in two ways: (1) By the Japanese methods of suspending them in moderately deep water from racks or floats (Fig. 1 & 5) and (2) By a new method of laying them on sheets of polyethylene plastic spread on the beach in the intertidal zone.

Preparing shell strings

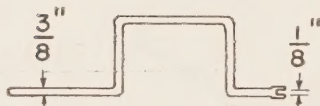
The Japanese prepare shells for stringing by punching holes in them with a spike-headed hammer or with a punch like that shown in Fig. 6. Scallop shells or oyster shells are best but other kinds will do.

6.



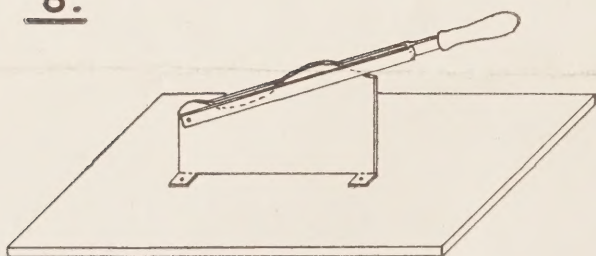
Shell Punch

7.



Wire Twister

8.



Shell Cutter

The shells are then strung on 13-gauge, galvanized wire. Oyster shells are strung without spacing because they do not fit together closely. Scallop shells

fit closely and spacing them 1 to 2 inches apart may increase spatfall and hasten growth of the settled spat. Twisting the wire between shells with pliers or with a little crank like that shown in Fig. 7 is an easy way of spacing.

Shell strings are easy to handle once they are made up. This is one of their chief advantages.

Shell strings in deeper water

Repeated tests at the Department's Oyster Culture Stations show that shell strings, suspended from pole racks or gasoline-drum floats, will take good sets in water 6 to 12 feet deep. They were suspended just before the earliest good spatfall predicted by the Fisheries Research Board. This normally occurs in mid-July or early August.

In these tests the strings were usually left on the racks or floats until late November. By then the largest spat usually measure $\frac{3}{4}$ inch in diameter and those of average size measure about $\frac{1}{2}$ inch.

In the few cases where shell strings got badly fouled by silt and marine growths, they were taken ashore, left to weather over winter and used again the next year in better locations. Most other types of collectors are not durable enough to stand this treatment.

Shell strings in the intertidal zone

In the last 2 years good catches of spat were taken on shell strings laid on sheets of polyethylene plastic spread on the bottom in the intertidal zone. Little work is involved in this method of spat collection.

The sheeting is the same as that used by building contractors to protect their materials from the weather. It is black or white, 6 mils thick, and comes in strips about 12 feet wide. Both colours work well. It is easy to spread but it is lighter than water and large bubbles of air tend to collect under it when the tide rises. This is overcome by using a $\frac{1}{2}$ -inch hollow punch to make holes 6 inches apart in the sheets while they are still rolled up.

So far, the tests have been made only in Bideford River, P.E.I. In mid-July 1960 the sheeting and strings were put out on clean, sandy-mud bottom in the intertidal zone in a protected cove 2 or 3 days before spatfall. The catches on these shell strings were almost as heavy as on those suspended from nearby floats in water 6 to 8 feet deep and the spat grew almost as well. The strings were left on the sheeting until late November when they were taken up for wintering.

These strings never fouled and retained their spat catching power much longer than those suspended from floats. Several spat collecting areas in the Maritimes have been abandoned on account of chronic fouling of suspended collectors. Some of these areas might be good spat producers if sheeting and string collectors were used.

The sheeting itself caught no spat or fouling growths in 1960 and was used again in 1961 with equally good results. It looks good enough to be used for several more years.

Some oyster lessees may wish to try collecting spat in the intertidal zone by one of the Japanese methods, for example, the umbrella method (Fig. 3). No plastic sheeting is required. But if wooden stakes are used at the centre and ends of the strings, they should be treated, as described in Chapter 11 of Bulletin 131, to protect them from shipworm attack.

Wintering spat on shell strings

Spat on shell strings wintered well on wooden platforms sunk in 6 feet of water and in tanks with a small flow of water through them. They might winter on plastic sheeting in 2 to 3 feet of water at low tide but this has not been tested.

Rearing spat to bedding size on shell strings

Early in 1961, the shells in the 1960 strings were restrung and spaced, then suspended from floats moored in 6 to 8 feet of water in Bideford River. By late November the young oysters had grown to near bedding size ($1\frac{1}{2}$ to 2 inches). When the strings were taken in for their second wintering they had to be handled carefully to avoid damage because the young bedding-size oysters had grown far beyond the margins of their mother shells. This spring (1962) we are separating the bedding oysters and planting them on maturing grounds.

In some areas it might be possible to rear the spat to bedding size by laying the strings on plastic sheeting in the intertidal zone for a second summer. But to date spat-rearing trials in such shallow water in Bideford River have been discouraging. The year-old oysters act as spat collectors and by November of their second year they are useless, grown-together clusters of large and small oysters.

Separating bedding oysters on shell strings

To insure growth to a good shape, oysters must be separated as soon as they reach bedding size. This usually requires a cleaning iron because the mother shell is so strong.

Separation is not so difficult when oysters are attached to scallop shells—especially to the thin shells of Gulf of St. Lawrence scallops. These can be cut with ordinary pruning shears. Cutting shells with a butcher's boning saw (a form of band saw) is quick and easy even with thick oyster shells. But it needs further testing for usefulness in commercial operations. The Japanese use a shell cutter like that shown in Fig. 8.

No matter which of the above methods is used, separating bedding oysters is time-consuming and therefore costly and will kill fair numbers of the young oysters. Nevertheless the shell-string system of producing bedding oysters is successful and basically so simple that it seems the best method to use at this critical time.

Maturing

After separation, the bedding oysters should be matured in the same way as any other bedding oysters. They require cultivating and, in some cases, protection from starfish. Detailed information on maturing is given in Chapters 8 and 9 of Bulletin 131.

Advice

In preparing this circular we have been thinking mostly of mainland oyster growers who are trying to rebuild their devastated stocks. But Prince Edward Island lessees, who have no oyster disease problems, need bedding oysters almost as desperately. They need them to stock their own leases or to sell as a cash crop to other growers either on the Island or on the mainland.

If you are planning to start spat collection in 1962, you may want to try shell strings. Gulf of St. Lawrence scallop shells are best if you can get them. We can't say which method of using shell strings will work best in your area but we think the plastic sheeting method is worth trying—provided, of course, that your area is suitable and that the spat settling there are disease-resistant. Shell strings will be tested at several of the Oyster Culture Stations in 1962.

For advice on any points raised in this circular, write to Department of Fisheries, Oyster Culture Station, Eglarlie, P.E.I., or to Fisheries Research Board of Canada, Biological Sub-Station, Eglarlie, P.E.I.



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